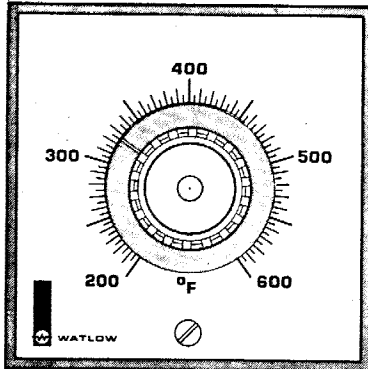


# Temperature Controller

**DATA SHEET**  
**MODEL 30-01-01**  
**30-03-01**  
**30-06-01**



Effective 5/1/78



## FEATURES

- Relay output
- Din package
- Front panel molded from high impact Lexan polycarbonate
- RTD, thermistor or T.C. sensors
- 120/240 VAC operation (field selectable)
- Line isolated
- Proportional control
- Adjustable time proportioning
- Manual reset
- Load power indication

## GENERAL DESCRIPTION

This Temperature Controller is designed for use with either RTD, thermistor or thermocouple sensors, depending on the application. The controller provides an adjustable time proportioning SPST relay output with an adjustable proportional band and manual reset to match the thermal characteristics of the controlled load. The panel mount din case features an easily read dial scale and high resolution set pot of instrument quality to provide excellent set point accuracy. The high torque feature of the pot prevents set point changes due to equipment vibration.

## SPECIFICATIONS:

**OUTPUT:** Relay S.P.D.T.

**CONTACT RATING:** 10 Amp. resistive at 120 VAC, 5 Amp. resistive at 240 VAC, 50 VA inductive.

**LINE VOLTAGE:** 120/240 VAC  $\pm$  10%, 50/60 Hz.

**POWER CONSUMPTION:** 2.0 VA (controller only).

**INDICATION:** Load light in knob indicates when driving current is applied to output relay coil.

**OPERATING AMBIENT:** 30 to 130°F.

**CONTROL ACCURACY:** Typically  $\pm$  1/2°C, depending on design of thermal system.

**SET POINT CALIBRATION:** Based on 50% duty cycle.

### SET POINT CALIBRATION ACCURACY:

$\pm$  1% of span, RTD and Thermistor Models.

$\pm$  1% of span for T.C. resistance of less than 100 ohms, T. C. Models.

### SET POINT SHIFT W/AMBIENT:

Typically 5 microvolts/°F, ambient referred to the input, T.C. Models.

Typically  $\pm$  1°F, RTD and Thermistor Models.

### SET POINT SHIFT W/LINE VOLTAGE:

$\pm$  10% change in line voltage will produce a set point shift of less than  $\pm$  .25% of span.

### ISOLATION: T.C. Models, T.C. input to load and line.

D.C. Resistance  $10^{11}$  Ohms      Capacitance 50 pf  
RTD and Thermistor Models—sensor and control circuitry are isolated from line and load.

### SENSOR PROTECTION:

T.C. Models—In the event of an open sensor, load power will de-energize.

RTD Models—In the event of an open sensor, load power will de-energize.

Thermistor Models—In the event of a shorted sensor, load power will de-energize.

### COLD JUNCTION COMPENSATION:

T.C. Models (Automatic), T.C. is connected directly to unit.

**PROPORTIONAL BAND:** Adjustable, typically 5 to 50°F.

**TIME PROPORTIONING:** Adjustable 2 to 20 seconds.

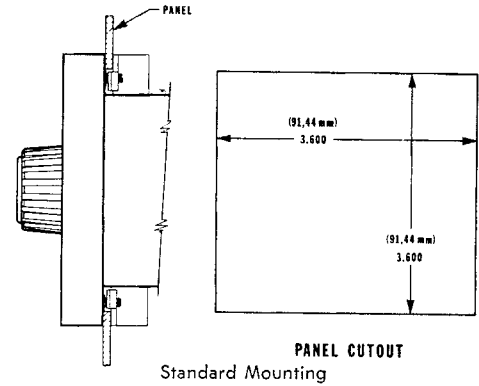
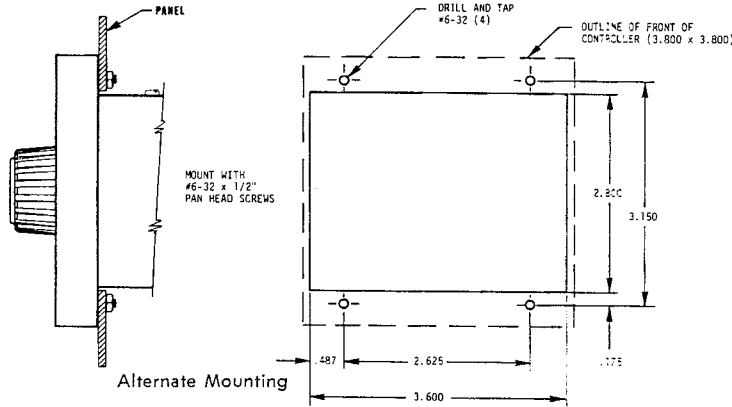
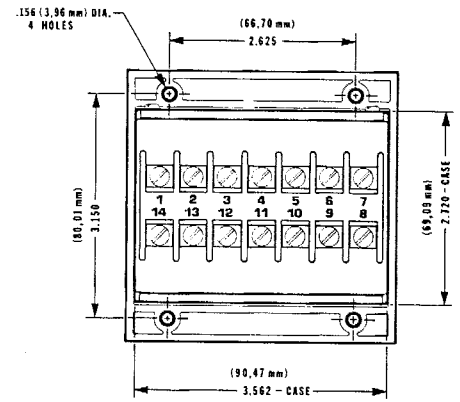
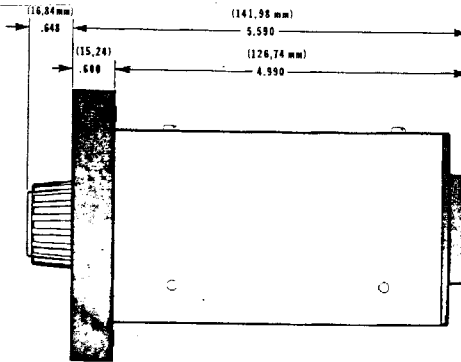
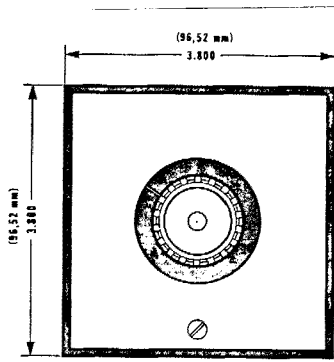
**MANUAL RESET:** Adjustable over 100% of proportional band.

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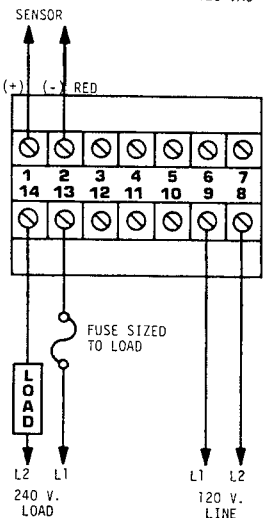
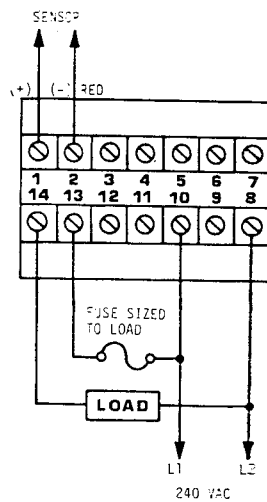
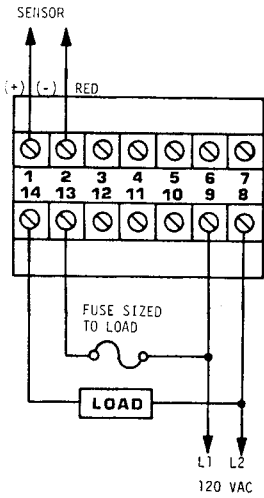
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PHONE 507 454-5300



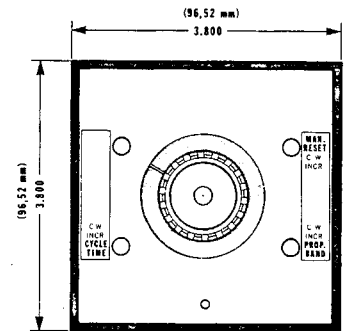
PANEL CUTOUT  
Standard Mounting



TEMPERATURE CONTROLLER

TERMINAL DESIGNATION

1. T.C. (+) ] SENSOR
2. T.C. (-) ]
3. NOT USED
4. NOT USED
5. NOT USED
6. NOT USED
7. NOT USED
8. A.C. LINE COMMON, L<sub>2</sub>
9. 120 V.A.C. LINE, L<sub>1</sub>
10. 240 V.A.C. LINE, L<sub>1</sub>
11. NOT USED
12. N.C. RELAY CONTACT
13. RELAY COMMON
14. N.O. RELAY CONTACT



ORDERING INFORMATION

Specify model number, temperature range, and sensor.

Model 30-01-01 RTD (100 ohms Plat.) Model

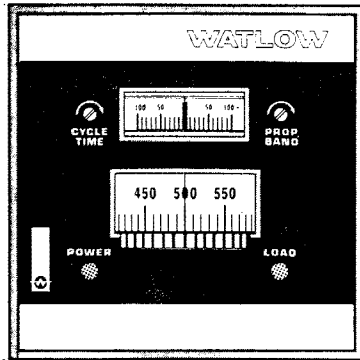
30-03-01 Thermistor Model

30-06-01 Thermocouple Model

Temperature Range: See Range Chart I.

# Temperature Controller

## DATA SHEET MODEL 30-06-02



### FEATURES

- Plug-in Design
- Relay output, plug-in for easy replacement
- Null indication
- Power on indication (L.E.D.)
- Load indication (L.E.D.)
- 120/240 VAC operation (field selectable)
- Automatic reset (field selectable)
- Anti-reset
- Adjustable proportional band
- ON/OFF or adjustable cycle time (field selectable)
- Din Package
- Front panel molded of high impact Lexan polycarbonate

### GENERAL DESCRIPTION

The Model 30-06-02 plug-in din temperature controller utilizes a plug-in relay output and is designed for use with thermocouple sensors. The unit features an analog drum set point potentiometer and null indication. The unit provides an adjustable proportional band and is field selectable for ON/OFF mode or control with an adjustable cycle time. The unit also provides automatic reset but is supplied with reset disabled. An anti-reset is provided which would inhibit reset action when outside the proportional band. The unique plug-in feature allows the operator easy access to the controller for selection of control modes or controller replacement without removing any external wiring or main case mounting.

### SPECIFICATIONS:

**OUTPUT:** Relay S.P.D.T. (Form C).

**CONTACT RATING:**

10 A resistive at 120 VAC, 5 A resistive at 240 VAC, 50 VA inductive.

**LINE VOLTAGE:**

120/240 VAC  $\pm 10\%$ , 50/60 Hz. (Selected with internal jumper-unit supplied with connection for 120 VAC operation.)

**POWER CONSUMPTION:** Less than 6.0 VA.

**INDICATION:**

Analog null meter  $\pm 100\%$  of proportional band. Load light is on when driving current is applied to output relay coil. Power on light indicates power applied to unit.

**OPERATING AMBIENT:** 30 to 130°F.

**CONTROL ACCURACY:**

Typically  $\pm 1/2^\circ\text{C}$ , depending on design of thermal system.

**SET POINT CALIBRATION ACCURACY:**

$\pm 1\%$  of span for thermocouple resistance of less than 100 ohms.

**SET POINT SHIFT W/AMBIENT:**

Typically 5 microvolts/ $^\circ\text{F}$  ambient referred to the input.

**SET POINT SHIFT W/LINE VOLTAGE:**

$\pm 10\%$  change in line voltage will produce a set point shift of less than  $\pm .25\%$  of span.

**ISOLATION:** Thermocouple input to load and line.

D. C. Resistance:  $10^{11}$  ohms. Capacitance: 50 pf

**SENSOR PROTECTION:**

In the event of an open sensor, load power will de-energize. Can be converted to downscale protection by adding 10 meg internal resistor.

**COLD JUNCTION COMPENSATION:**

Automatic, thermocouple is connected directly to unit.

**PROPORTIONAL BAND:** Adjustable  $5^\circ\text{F} \pm 1$  to  $50^\circ\text{F} \pm 5$ .

**CYCLE RATE:**

Adjustable 5 sec.  $\pm 1$  to 30 sec.  $\pm 5$ . Unit supplied connected as proportional unit with adjustable cycle time but can be converted to ON/OFF control by adding internal jumper.

**RESET:**

Automatic and fixed time constant, equivalent to 0.5 repeats per minute. Controller supplied with a jumper wire across reset capacitor to disable auto-reset function. To enable reset function, remove jumper wire by cutting between turret terminals. Reset time constant can be changed to suit application by replacing "R" on turret terminals.

R15	C5	Repeats per minute
470K	25 mfd	5.0
4.7 Meg	25 mfd	0.5 (standard)
10 Meg	120 mfd	0.05

**ANTI-REST:**

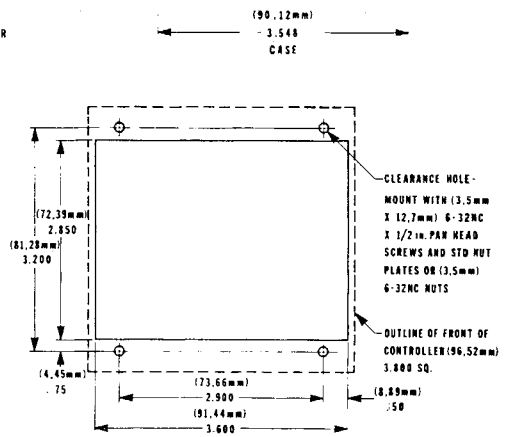
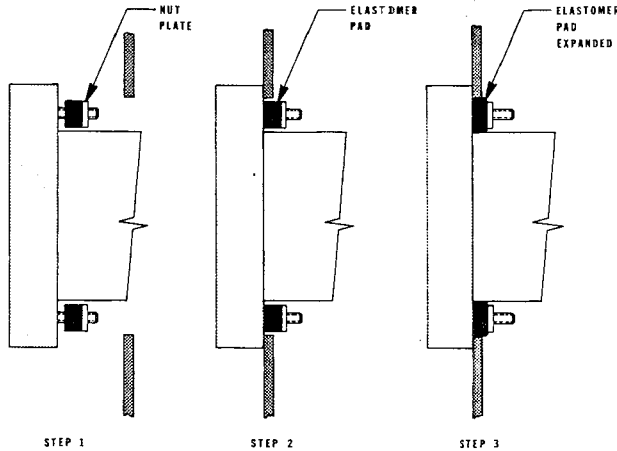
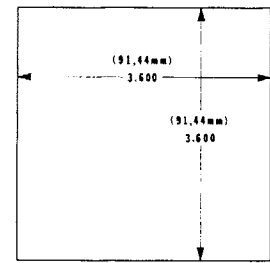
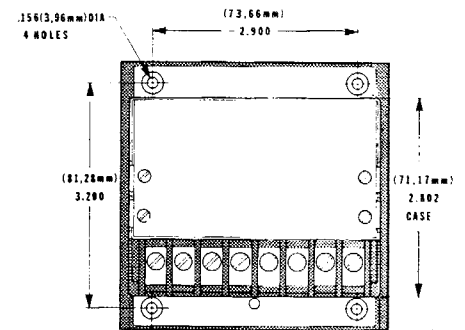
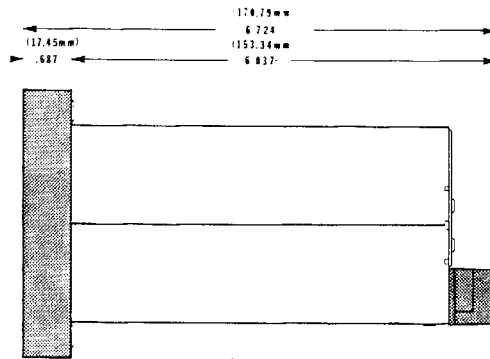
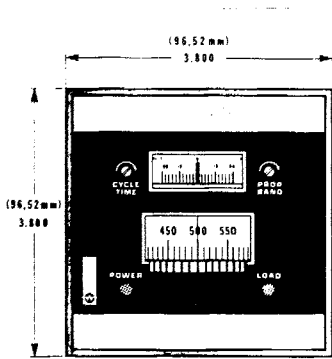
Standard, inhibits auto reset function at limit of proportioning band.

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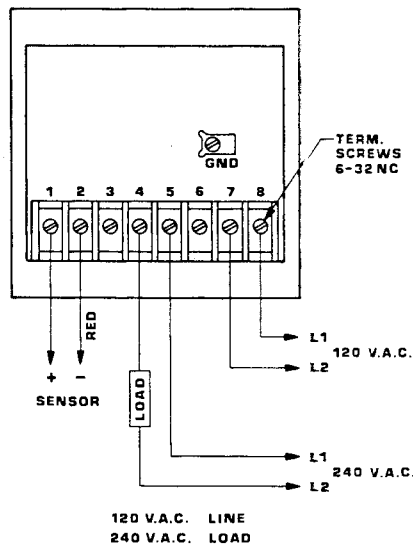
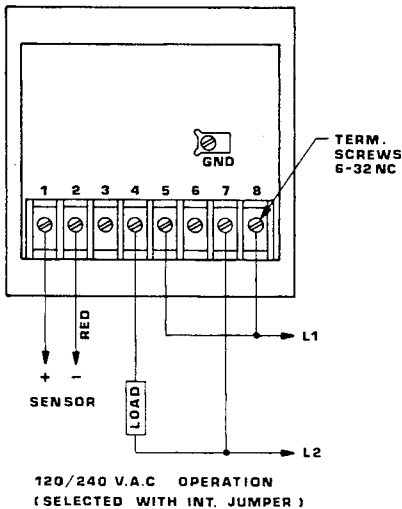
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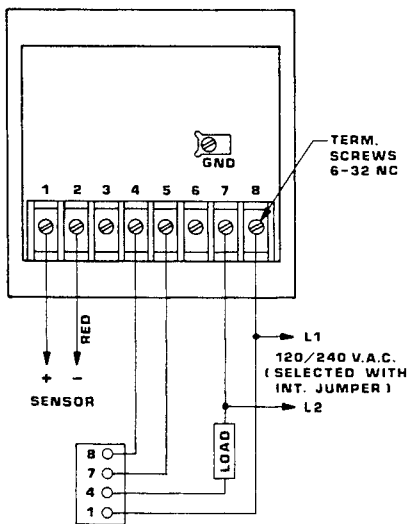


**STANDARD MOUNTING**

**ALTERNATE MOUNTING**



MODE	JUMPERS	BOARD#
120 VAC Line	Use W1, W3	A007-798
240 VAC Line	Remove W1, W3 Add W2	A007-798
Downscale Protection	Add R25 (10 meg.)	A007-797
On/Off Control	Add W2	A007-797
Reset Enable	Remove W1	A007-797



MODEL 30-06-02  
TEMPERATURE CONTROLLER

**TERMINAL DESIGNATION**

- 1. T.C. (+) } SENSOR
- 2. T.C. (-) }
- 3. NOT USED
- 4. N.O. } CONTACT RATED
- 5. C. } 230V, MAX 5 AMP R.M.S.
- 6. N.C. }
- 7. A.C. LINE COMMON, L2
- 8. 115 OR 230 V.A.C. LINE, L1  
SELECTED BY JUMPER WIRES  
ON P.C. BOARD

GND-CHASSIS GROUND

RANGE \_\_\_\_\_

RANGE \_\_\_\_\_

T.C. TYPE \_\_\_\_\_

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**ORDERING INFORMATION**

Specify model number, temperature range and thermocouple type.

Model 30-06-02

Temperature Ranges — See Chart I

MODEL 53-00-12 SOLID STATE CONTACTOR (OPTIONAL)